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REMARKS

The Decision on Appeal notes that claims 1-11, 13, 14, and 17-26 are pending in the referenced application and that claims 12, 15, and 16 are canceled. Claims 1-11, 13, 14, and 21-26 were allowed by Board of Patent Appeals and Interferences ('the Board'). Claims 17-20 stand rejected under 35 U.S.C. § 103. In view of the following discussion, the Applicants submit that none of the claims now pending in the application is obvious under the provisions of 35 U.S.C. § 103. Thus, the Applicants believe that all of these claims are now in allowable form.

REJECTION OF CLAIMS 17-20 UNDER 35 U.S.C. § 103

Claims 17-20 stand rejected under 35 U.S.C. § 103 as being unpatentable over Barber et al. (U.S. Patent No. 5,751,286 issued May 12, 1998) (Barber) in view of Yeo et al. (U.S. Patent No. 5,821,945 issued October 13, 1998) (Yeo) and Shibata et al. ("Content-Based Structuring of Video Information": 0-8186-7436-9/9, 1996 IEEE) (Shibata). The rejection is respectfully traversed. The Applicants respectfully disagree.

The Examiner's attention is directed to the fact that Barber in view of Yeo and Shibata fail to teach a method for browsing a video program stored in a mass storage unit "where said plurality of scenes comprise a plurality of video frames including a key frame comprising a mosaic of an intra-scene background layer." Specifically, Applicants' independent claim positively recites:

17. A method for browsing a video program stored in a mass storage unit, said video program comprising a plurality of scenes, said method comprising the steps of:

providing a database associated with the stored video program, said database comprising attribute information associated with at least a representative portion of said plurality of video frames forming each scene, where said plurality of scenes comprise a plurality of video frames including a key frame comprising a mosaic of an intra-scene background layer;

formulating a query utilizing attribute information associated with a desired video frame;

searching said database to identify video frames substantially satisfying said query; and

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retrieving, from said mass storage unit, one or more of said identified video frames. (emphasis added)

Barber discloses an image query system and method wherein images in an image data base are searched in response to queries which include the visual characteristics of the images such as colors, textures, shapes, and sizes as well as by textual tags appended to the images.

Shibata teaches content-based structuring of video information using textual descriptions. In fact, Shibata has absolutely nothing to do with the present invention. Shibata defines (per Section 3.1) "video structuring" as an operation which divides a video sequence into "segments" and describes the hierarchical relations between them. It is also noted that the description in Shibata of the relations between segments is a textual description intended to provide a human readable description of the underlying video scene such that the underlying video may be manually processed by a director or editor within the context of a video editing environment or studio environment, e.g. by a director. Specifically, a descriptive component (DC) is defined by Shibata as key words or elemental words that constitute short sentences which may be divided into several groups (see Section 2.). With respect to video structuring, the categories of visual objects, actions of the object, and state of the object are used. The descriptive components (DCs) are mapped (see FIG. 1) as a script which indicates the presence or absence of particular descriptive components within the video sequence in time.

The "vector expressions" of Shibata are not motion vectors. Rather (per section 3.1), the Shibata "vector expressions" are merely representations of the duration of descriptive components in terms of time or segment length. The Shibata "vector expressions" should not be equated with the motion vectors discussed in the instant patent application. It can be seen in FIG. 2 of Shibata that each "layer" is formed by averaging "basic segments" of a lower layer. That is, as depicted in FIG. 2, where M basic segments are provided, the Mth layer includes the M "basic segments." By averaging the vector expressions of respective adjacent basic segments within the Mth layer, an Mth minus 1 layer is formed which includes M/2 basic segments. Each of the M/2 basic segments comprises the averaged vector expressions of the two basic segments within the Mth layer. Similarly, for each succeeding layer, respective pairs of

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basic segments or derived (i.e., averaged) basic segments are themselves averaged to produce the next layer. A top layer or $M = 1$ layer comprises the average of all of the vector expressions of the basic segments forming the M th layer.

Yeo discloses a method for video browsing based on content and structure. The Yeo method arranges video information such that a human browsing through the arranged video information may easily find desired video imagery. Referring to FIG. 1 of the Yeo patent, scene change detection is employed to divide a video screen into a plurality of video "shots," which are then arranged into a plurality of "clusters," where each cluster comprises similar video shots. Yeo utilizes at least the first frame of a cluster or shot as a representative frame for the entire shot. Yeo terms this first frame as a "key frame." The key frame of Yeo includes both foreground and background information. This is to be expected, since the purpose of the Yeo key frame is simply to represent typical imagery within the scene, and such representation necessarily requires the representation of foreground and background information typical of that scene. A hierarchical graph building technique is employed to provide a graphical means of transitioning between clusters or shots within clusters. In this manner, a browser may identify shots, or clusters of shots, having similar video imagery (e.g., a particular speaker or a particular image). It is crucial to note that the Yeo arrangement is not directed towards a layered representation of video or image information. Rather, the Yeo arrangement is directed towards the clustering of similar video imagery in a manner allowing rapid retrieval by a video browser utilizing a graphical metaphor to arrange and present the clustered video information.

Barber is devoid of the concept of a key frame, much less the claimed element of "a key frame comprising a mosaic of an intra-scene background layer." The combination of Barber with Yeo and Shibata still fails to teach what is recited in claim 17. Shibata, like Barber is also devoid of the concept of a key frame. As argued in the Appeal Brief filed by Applicants on August 28, 2000, Yeo discloses a key frame. However, the key frame taught by Yeo has absolutely nothing to do with the key frame of the present invention. The Yeo key frame is simply the first frame of a shot comprising a plurality of frames. In fact, Yeo provides (for the Abstract of the Invention) that "video shots are first identified and a collection of key frames is used to represent

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each video segment." Thus, Yeo utilizes a plurality of frames to represent a shot or segment, where each of the frames comprises a standard video frame including all background and foreground information within that frame. The Yeo key frame includes information from only one frame, rather than the mosaic information of the claimed key frame of the present invention. The use of similar terminology (i.e., "key frame") does not necessarily mean that concepts so termed are the same. Thus, the alleged combination of Barber with Yeo and Shibata does not teach or suggest Applicants' invention as recited in claim 17. Therefore, Applicants contend that claim 17 is patentable over Barber in view of Yeo and Shibata and, as such, fully satisfies the requirements of 35 U.S.C. §103. Since the alleged combination of Barber in view of Yeo and Shibata would not produce Applicants' invention as recited in claim 17, dependent claims 18-20 are also not obvious and are allowable.

The Examiner's attention is directed to the fact that the Applicants' position on the above references is consistent with that of the Board's in the Decision on Appeal. In fact, with respect to claim 17, the Board only objected that the argued elements were embodied in the preamble and not in the body of the claim. Thus, the Applicants have amended claim 17 to include the previously argued limitations in the body of the claim as suggested by the Board. As such, the Applicants assert that claim 17 is allowable in view of the Decision on Appeal.

SUPPORT FOR AMENDMENT TO CLAIM 17

Support for the amendment to claim 17 can be found at least at page 3, lines 23-30 of the Applicants' Specification as originally filed.

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Conclusion

Thus, the Applicants submit that all of these claims now fully satisfy the requirements of 35 U.S.C. §103. Consequently, the Applicants believe that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring the issuance of a final action in any of the claims now pending in the application, it is requested that the Examiner telephone Mr. Kin-Wah Tong, Esq. at (732) 530 9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,



10/27/04

Date

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